To the Installer:
Please attach these instructions next to the water heater.

To the Consumer:
Please read these and all component instructions and keep for future reference.

OIL-FIRED BCS
Instruction Manual

Warranty, Registration Card and Parts List are included.
Homeowner: Please remember to <u>return</u> the Registration Card!

WARNING
Improper installation, adjustment, alteration, service or maintenance can cause serious injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer or service agency.

WARNING
If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

WARNING
Do not install on combustible flooring. Install in accordance with all local codes. In the absence of local codes, refer to NFPA 31 or ANSI Z21.10.1.

CAUTION
The recommended temperature for normal residential use is 120°F. The dial on the aquastat does not always reflect the out-coming water temperature and it could occasionally exceed 120°F. Variation in out-coming temperature could be based on factors including but not limited to usage patterns and type of installation. Test water at the tap nearest to the water heater. (See page 8 for measuring the out-coming water temperature.)

WARNING
Hotter water increases the risk of scald injury. Before adjusting the water temperature setting, read this instruction manual. Temperatures at which injury occurs vary with the person's age and the length of exposure. The slower reaction time of children, elderly or physically or mentally challenged persons increases the scalding hazard to them. It is recommended that lower water temperatures be used where these exposure hazards exist. Households with small children or invalids may require a temperature setting less than 120°F to prevent accidental contact with hot water. To produce less than 120°F, use point-of-use temperature limiting devices.

If higher water temperature is needed in part of the water system, automatic temperature limiting devices must be used on all lines to water taps.

WARNING
Flammable vapors may be drawn to this water heater from other areas of the structure by air currents. Do not store or use any flammable liquids in the vicinity of this heater.

WARNING
Water heater blankets may restrict air flow to the water heater and cause fire, asphyxiation, personal injury or death.

THIS MANUAL HAS BEEN PREPARED TO ACQUAINT YOU WITH THE INSTALLATION, OPERATION, AND MAINTENANCE OF YOUR WATER HEATER AND TO PROVIDE IMPORTANT SAFETY INFORMATION.

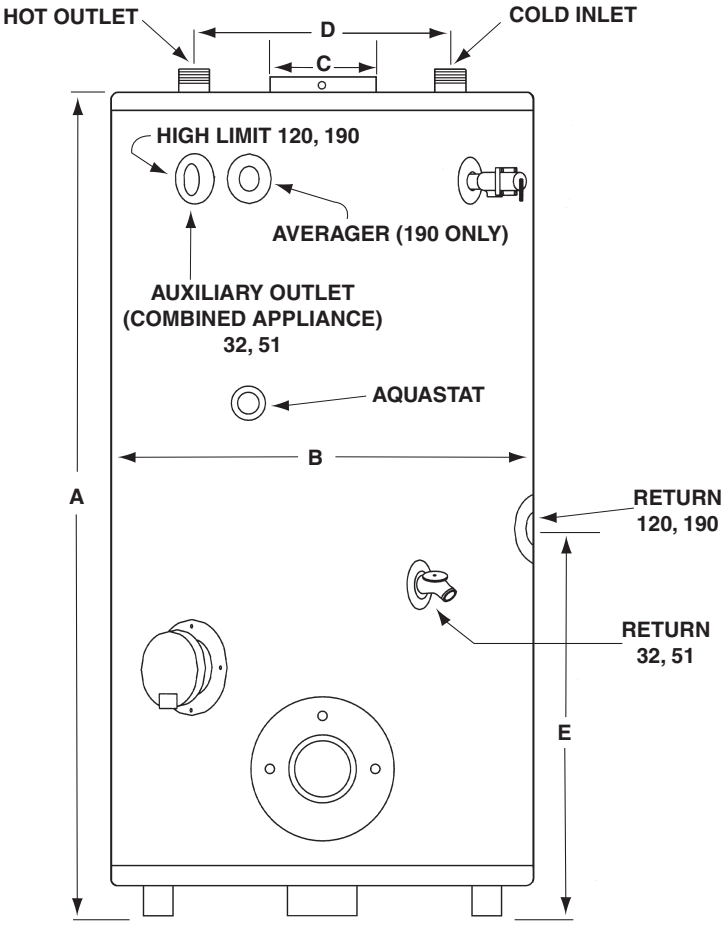
Read all instructions thoroughly before attempting installation or operation of your water heater. Keep these instructions for future reference.

Local plumbing and electrical codes must be followed in the installation of this water heater. In the absence of a local code use the UNIFORM PLUMBING CODE and the NFPA Code. Local codes may supersede instructions in this installation manual.

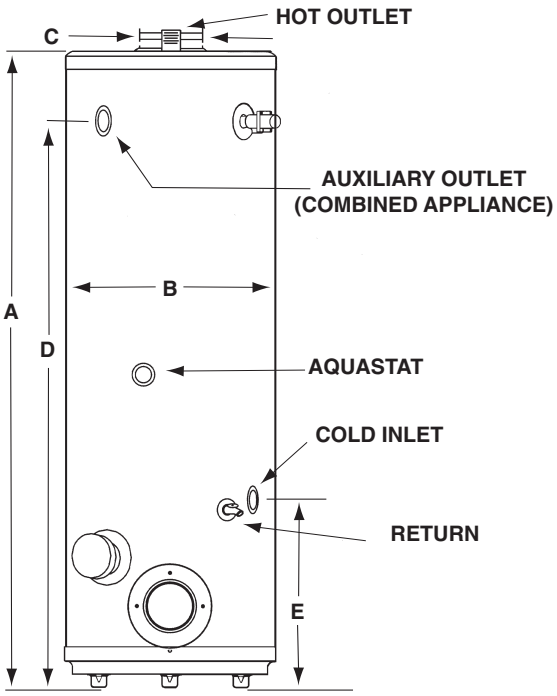
These instructions are a guide for the correct installation of the water heater. The manufacturer will not be liable for damages caused by failure to comply with the installation and operating instructions outlined on the following pages.

If you lack the necessary skills required or have difficulty following the directions, seek help from a qualified person for that part of the installation you do not understand.

FAILURE TO FOLLOW THESE INSTRUCTIONS OR ALL APPLICABLE BUILDING CODES AND REGULATIONS VOIDS THE WARRANTY ON THIS WATER HEATER.



32, 51, 120, 190E-BCS



40E-BCS

OIL-FIRED BCS
Instruction Manual

	Storage Capacity (gal.)	BTUH (Thousands)	Firing Rate (GPH)	Cold Inlet	Hot Outlet	Return	Temperature Rise (F)	Recovery (GPH)	Dimensions A	B	C	D	E	Voltage (V/Hz)	Weight (lbs.) (inc. burner & controls)
32E-BCS	32	104	.75	¾"	¾"	1"	90°	114	51"	20"	6"	11"	17"	120/60	312
40E-BCS	40	126	.9	¾"	¾"	1"	90°	136	61"	20"	6"	54"	18"	120/60	344
51E-BCS	50	152	1.1	1"	1"	1"	90°	161	59"	24"	6"	11"	18"	120/60	370
120E-BCS	113	155	1.1	1"	2"	2"	90°	163	67"	31½"	6"	19"	22"	120/60	751
190E-BCS	113	190	1.35	1"	2"	2"	90°	199	67"	31½"	6"	19"	22"	120/60	751

WHEN YOU RECEIVE YOUR NEW WATER HEATER

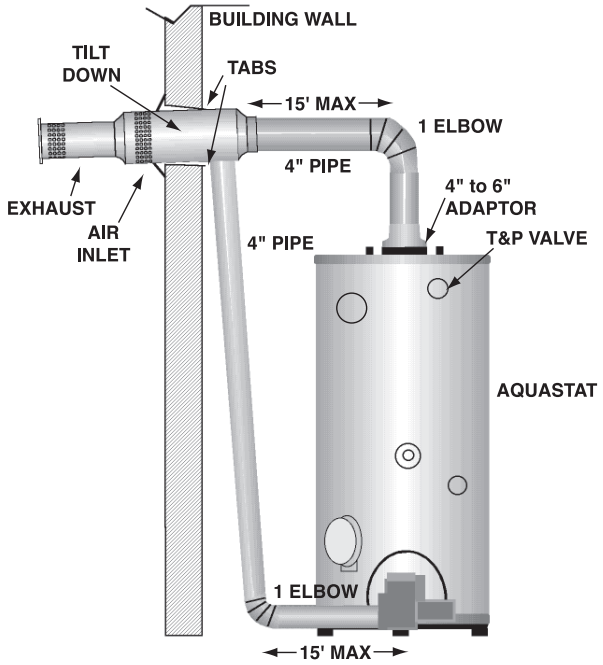
Check the new equipment to see if all components are in good condition and were not damaged in shipment. The water heater and burner may be shipped as separate units. The aquastat and immersion well are packed with the burner. If damage is observed or parts appear to be missing, contact your wholesaler.

WHEN THE WATER HEATER IS USED IN A COMBINED APPLIANCE APPLICATION, PLEASE CONTACT YOUR LOCAL DISTRIBUTOR OR THE FACTORY FOR INSTALLATION INSTRUCTIONS ON "SYSTEM PLUS".

FLUE OUTLET PLACEMENT AND INSTALLATION

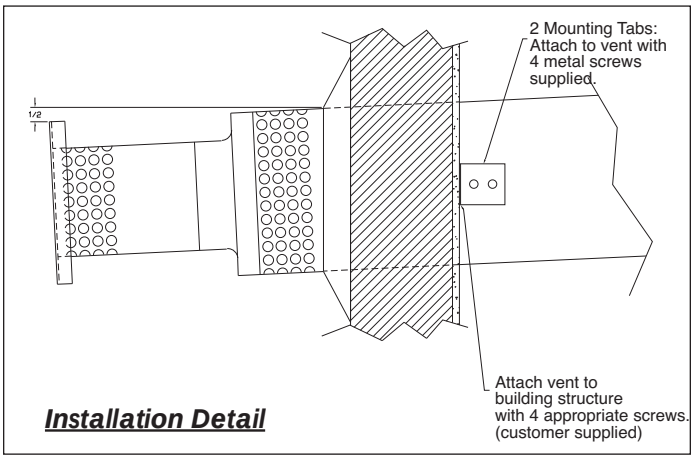
Flue outlet placement is of utmost importance for maximizing the performance of your Bock Balanced Combustion System (BCS). Please see page 13 for unit dimensions. The following instructions are recommended and may be code mandated for BCS installation:

- The wall opposite to prevailing winds (east or south wall, if prevailing winter winds are typically out of the west or north) is the preferred wall for installation. This reduces the likelihood that the Balanced Flue™ application will be operating against high winds and severe cold when it is cycling the most often.
- The flue outlet must be placed at least one (1) foot above the highest anticipated snow load to prevent flue blockage.
- Use a flat wall for the flue outlet and stay a minimum of three feet from corners or any structure to reduce eddy currents.
- The flue outlet should be located even with or above the top of the water heater and in a location requiring the fewest inlet and outlet elbows possible.
- To reduce frosting effects, place the outlet **as far as possible** from windows, doors and other structural openings such as eave vents—four feet is the recommended minimum.
- A minimum distance of three feet from the outlet to plants and shrubs is suggested; a greater distance is preferred, as moisture and frost effects can result in damage or loss.
- The Balanced Flue should be located away from high traffic areas to prevent damage to wall outlet and human contact with the hot exhaust surfaces.



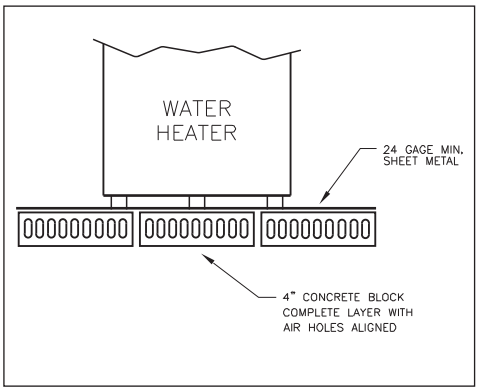
1. Cut a 7" O.D. opening in the preferred wall and provide a minimum of ½" clearance of non-combustible space around the Balanced Flue. The opening should allow for a ½" downward pitch to the outside for drainage of any condensate in the Balanced Flue.

2. Insert the Balanced Flue from the inside through the wall. Check the outside extension to be sure air inlet holes are exposed and will not be covered by the flashing ring. Fasten the assembly to the inside wall with the tabs provided (see installation detail drawing). On the outside wall, install the flashing ring provided. Caulk around the outer and inner rim of the flashing ring to prevent moisture from entering through the wall.



Installation Detail

WATER HEATER PLACEMENT



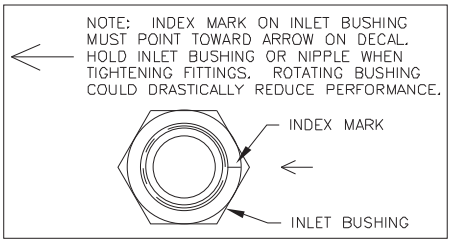
NOTE: Locate the heater so it is not subject to physical damage from moving vehicles or flooding.

DO NOT INSTALL THE WATER HEATER ON COMBUSTIBLE FLOORING. Place on noncombustible flooring and maintain clearances prescribed by this manufacturer and per code NFPA 31. If the water heater must be located on combustible flooring it should be raised off the floor with a layer of 4" concrete block laid so the air holes are aligned as shown in the drawing at left. Please contact Bock Water Heaters or consult NFPA 31 with questions concerning proper flooring materials. Leave adequate room for periodic maintenance of heater and burner. The heater should be placed as near to the Balanced Flue as convenient in order to keep vent connector length to a minimum, with a maximum horizontal run length of 15 feet.

Minimum clearance to combustible construction is: SIDES 6"; BACK 6"; FRONT 24". The installation of this water heater must conform with local codes and ordinances. In the absence of local codes, the installation must comply with the National Fire Protection Association (NFPA 31) Code.

CONNECT WATER PIPING

Be careful not to apply any heat to the water heater nipples. Install dielectric unions and shut off valves on both hot and cold water lines.


NOTE: INDEX MARK ON INLET BUSHING MUST POINT TOWARD ARROW ON DECAL. HOLD INLET BUSHING OR NIPPLE WHEN TIGHTENING FITTINGS. ROTATING BUSHING COULD DRASTICALLY REDUCE PERFORMANCE.
INDEX MARK
INLET BUSHING

40 BCS models are equipped with a brass inlet bushing installed in the tank. Heaters equipped with this bushing are marked next to the inlet by the decal shown on the left. The purpose of this bushing is to help keep the tank bottom free of sediment by aiding tank flushing. This bushing must be located as shown on the decal to function properly. Do not allow the bushing to rotate out of position when tightening the inlet fittings.

An approved pressure and temperature relief valve is factory installed in the opening provided in the upper right-hand side of the water heater. Pipe the T&P to within 6" of the floor or to a floor drain with a free flowing drain pipe.

CAUTION: Scalding injury and/or water damage can occur from either the manual lifting of the lever or the normal operation of the T&P valve if it is not piped to a proper drain. If the valve fails to flow water or reseat, call your plumber.

Check incoming water line for backflow preventers or water pressure reducing valves, as these may cause pressure to build up in the water heater and result in tank failure. If this water heater is installed in a closed system or if backflow preventers and pressure regulators are installed, a properly sized expansion tank must be installed.

Note: **Do not try to heat hard water as this will drastically reduce heater life. Install a water softener if the water heater is being installed in a hard water area (water hardness higher than seven grains).**

EXHAUST VENT

Where clearances to combustibles are a concern use double wall venting. **Venting approved for Category III applicances is ideal but not required, single wall venting may be used if allowed by local code.** **Caution:** **Do not use B-vent. The vent connector from the heater to the rear of the Balanced Flue should be made using galvanized or stainless (preferred) vent material with a 4" minimum diameter. A 6" × 4" reducer is placed on top of the heater flue.** **Note:** **For 190E-BCS, a 6" vent pipe is preferred. Use one elbow to connect the heater to the venting. An additional elbow may be used if the maximum horizontal distance from the BCS outlet to the heater is reduced three feet. Maximum horizontal distance is 15 feet.**

Venting from the heater to the Balanced Flue should be sealed but does not have to be pressure tight. High temperature stainless sealing tape (2" wide) or high temperature (+500°F) RTV silicon sealants are recommended. Make certain the flue connector is removable for servicing.

FRESH AIR INTAKE VENT

Proper **sealing** of the fresh air intake vent material is important, but temperature is not an issue. Failure to properly seal the inlet venting subjects the burner to possible reverse drafts after burner shutdown—**a hazardous condition with the possibility of creating a fire**. Use only solid or flexible metal duct, rigid plastic, or similar material of 4" diameter. **Note: Do not use flexible plastic dryer vent hose**. Avoid tight turns with flexible ducting and limit length. If using solid ducting, use a maximum of two elbows and 15' horizontal length. One additional elbow may be used if horizontal distance from the BCS outlet to the heater is reduced three feet.

BURNER

The BCS burner is a custom burner equipped with an outside fresh air receiver, nozzle preheater, fuel oil solenoid valve and a custom electronic primary control having a 15-minute post-purge timer. Do not use burner controls with shorter post-purge times as burner damage may result.

MOUNT THE OIL BURNER

An aquastat with immersion well is packed with the burner. The thermostat is factory set at 120°F for residential use. The maximum setting for 32, 40, and 51E-BCS models is 160°F; for 120 and 190E-BCS models the maximum setting is 180°F. The adjustable differential on 120E-BCS models is shipped at 15°. Lower differentials can be used for water temperatures under 160°F. (See the caution on page 2 regarding temperature variations.) Install the immersion well with the aquastat and verify that the sensing bulb may be fully inserted into the well. (Refer to "Controls" section on page 10.)

Remove the cardboard core from the burner opening in the water heater. Mount the burner on stud bolts, making sure to place the supplied gasket between the burner flange and heater. Secure the burner to the heater with the ¼-20 nuts or ⅜" × 16 cap screws supplied.

CONNECT THE ELECTRICITY

REFER TO BURNER WIRE DIAGRAM (page 4). All wiring must comply with applicable codes and ordinances. The primary relay and aquastat are wired to the burner at the factory. Install the aquastat well in the ¾" tapping at the front of the heater. Be sure the sensing bulb is all the way in. Tighten the aquastat retaining screws to secure the control to the well. Connect the power supply to the aquastat, being sure to run through a fused disconnect switch (to be attached to heater in the field).

CONNECT THE OIL LINE

Gravity System: The oil burner is normally equipped with a single-stage pump equipped for one line (gravity) flow. Use ⅜" O.D. or larger soft copper tubing and attach with flared fittings. DO NOT USE COMPRESSION FITTINGS. Install the shut off valve and oil filter in the oil line. Follow instructions from the pump manufacturer (attached to pump).

Lift System: Run a two-line system (suction and return lines) for lifts over 8 feet. Install a bypass plug if required according to the instructions attached to the pump. (Plug is in bag with instruction sheet.) The burner may be ordered with a two-stage pump for high lifts or longer runs.

WARNING!!! When you install the bypass plug you MUST run a two-line system!

For any horizontal run or lift that exceeds the maximum length specified in the chart below, a booster pump must be used. Booster pumps may be obtained from Sun Tec Hydraulics, Rockford, Illinois. Booster pumps must be installed as close to the oil supply tank as possible. Suction and return lines should be the same diameter and both go within 6" of the bottom of the tank. The return line should stop slightly above the suction line. Use a minimum of fittings. Make tubing bends with as large a radius as possible. DO NOT USE COMPRESSION FITTINGS. Use caution in the final connection to the burner. Do not put strain on the fuel unit. Before attaching tubing to the burner, form a coil in the tubing to minimize any vibration. Bury oil lines in the floor for quiet operation, making sure there are NO CONNECTIONS OR FITTINGS UNDER THE FLOOR.

MAXIMUM LIFT AND HORIZONTAL RUN (Refer to pump manufacturer's instructions)

Maximum Lift & Horizontal Run for Oil Units

One-pipe System			Two-pipe System with Single-Stage pump*			Two-pipe System with Two-Stage pump**		
Lift	Horizontal Run		Lift	3450 RPM		Lift	3450 RPM	
	⅜" O.D. Tube	½" O.D. Tube		⅜" O.D. Tube	½" O.D. Tube		⅜" O.D. Tube	½" O.D. Tube
0'	65'	100'	0'	84'	100'	0'	93'	100'
4'	45'	100'	1'	78'	100'	2'	85'	100'
7'	31'	100'	2'	73'	100'	4'	77'	100'
8'	16'	64'	3'	68'	100'	6'	69'	100'
Inlet vacuum must not exceed 6 inHG on a one-pipe system			4'	63'	100'	8'	60'	100'
			5'	57'	100'	10'	52'	100'
			6'	52'	100'	12'	44'	100'
			7'	47'	100'	14'	36'	100'
			8'	42'	100'	16'	27'	100'
			9'	36'	100'	18'	—	76'
			10'	31'	100'	*Suntec A Series pumps		
			11'	26'	100'	**Suntec B Series pumps		
			12'	21'	83'	Inlet vacuum must not exceed 6 inHG on a one-pipe system. On a two-pipe system, inlet vacuum must be less than 12 inHG for "A" model pumps and 17 inHG for "B" model pumps.		
			13'	—	62'			
			14'	—	41'			

PLACE WATER SYSTEM IN OPERATION

1. Fill the tank with water, opening a hot water faucet to allow trapped air to escape from the heater. Open the cold water inlet valves. Shut off each faucet as it delivers water that is free of air. Inspect for leaks. Never operate an empty or partially full heater.
2. Be sure the oil tank is filled with #1 or #2 heating oil. Loosen the ignitor hold down screw and swing the ignitor back open on the hinge. Rotate the blower wheel a few times to loosen the pump shaft. Swing the ignitor closed and fasten.
3. Bleed air from the oil line by opening the bleed valve on the fuel pump. Attach a small plastic tube to the bleed valve fitting on the pump and run to a gallon container. Turn on the electricity and set the thermostat so the burner motor runs. The heater will not ignite when the bleed valve is open. Bleed the line until the oil is completely clear, not milky or opaque. The oil must be transparent and free of air bubbles and froth. To keep the burner control from locking out while bleeding the pump, attach a jumper between the flame detector terminals after starting the burner. Remove the jumper when finished. Shut the bleed valve and the burner will ignite. Remove the plastic tubing. Set the pump pressure to 100 PSI.
4. Adjust the burner combustion air in accordance with the burner manufacturer's instructions. Using combustion instruments, check the CO_2 and smoke. The CO_2 should be at least 10½% with 0-to-trace smoke on the Bacharach scale (see burner installation manual.) No draft adjustment is required. Your Bock BCS water heater will operate under draft or low positive pressure depending on installation.
5. While the burner is operating, disconnect one of the yellow cad cell wires. Check to see that the burner control locks out in the time specified on the control. Reattach the wire and reset the control. The burner should restart. **Note:** You may have to wait a minute before resetting the control.

INSPECT THE INSTALLATION AND ADJUST THE CONTROLS

The thermostat has been adjusted to 120°F at the factory. Wait until thermostat has shut off fuel to the burner. Wait 30 seconds following shut-off of fuel, then set thermostat to the highest temperature. The burner should relight. Set thermostat to the lowest temperature; the burner should go out. The thermostat should be adjusted to the minimum setting that will meet the hot water needs of the homeowner or commercial application.

CAUTION: There is a scald potential if the thermostat is set too high. ***The recommended temperature setting for normal residential use is 120°F.*** If higher temperature settings are needed for combined appliance applications or commercial use, an automatic tempering valve must be installed on all domestic hot water lines. Should overheating occur, or the fuel supply fail to shut off, turn off the electricity to the water heater.

MEASURING THE OUTCOMING WATER TEMPERATURE

The thermostat is factory set at 120°F for residential use. (See the caution above regarding temperature variations.) It is the responsibility of the homeowner and installer to verify that the installer follows the recommended quantitative testing for measuring the out-coming water temperature. To make sure that the system works properly after installation and in the future, it is recommended that the heater's performance be measured and monitored. Run water out of the tap nearest the heater until it comes out warm. Using a calibrated thermometer, take a measurement. If the water is not at a suitable temperature for the installation, have a qualified service person adjust the aquastat. Contact Bock for further information if needed.

This log (or a similar one) should be filled out as follows:

MEASURING THE OUTCOMING WATER TEMPERATURE, CON'T

Date	Time	Person running test	Set temp °F	Outlet temp °F

WARNING: Hydrogen gas can be produced in a hot water system served by a heater that has not been used for a long period of time (generally two weeks or more). Hydrogen gas is extremely flammable. To reduce the risk of injury, open the hot water faucet at the highest location in the house for several minutes before using any electrical appliance connected to the hot water system. If hydrogen is present, there may be an unusual sound similar to air escaping through the pipe as the water begins to flow. Do not smoke or allow an open flame near the faucet at the time it is open.

MAINTENANCE

Annual service of the BCS is suggested and biannual service is recommended. For burner maintenance, follow the manufacturer's instructions supplied with the burner.

1. Install a new burner nozzle of the correct rate and angle.
2. Clean and adjust the electrodes and inspect for cracks in the porcelain. Check for corrosion on the buss bars and ignitor terminals.
3. Change the fuel oil filter and have the oil tank checked for sediment. Clean the tank, if necessary.
4. The system should be checked with combustion instruments for safe and efficient operation.
5. Keep the oil tank full to prevent water vapor from collecting (especially during the summer).
6. Regularly check the Balanced Flue for obstructions such as hornets' nests. The end caps are removable for cleaning. Check the inlet and outlet tubes for any blockage and make sure the joints are sealed.
7. EVERY SIX TO 12 MONTHS: Drain the heater tank and inspect for sediment or lime accumulation. Flush if necessary. If lime has accumulated, remove with a commercial compound. Check your water softening equipment if lime is found. DO NOT ATTEMPT TO HEAT HARD WATER. (See maintenance label on heater.)
8. **Change the magnesium anode rods every six to 12 months or when they are reduced to ⅜" diameter.** (See maintenance label on heater.) It is recommended that your installer use PermaBond LH-050. Teflon tape should not be used when installing magnesium or aluminum anode rods.
9. Open the relief valve test lever to flush out. Make sure it reseats itself.
10. If the heater is shut off in cold weather, drain the tank to prevent freezing.

SERVICE

1. Check the fuel supply, electrical wiring, fuses, and make sure the temperature control is calling for heat.
2. If the motor runs but there is no flame, remove the electrode assembly, clean, readjust, and check the porcelain for cracks. Replace if necessary. Check the ignitor to see if it is producing a spark. (***Use extreme caution—the ignitor has 14,000 volt output.***) Make sure the coupling between the motor and pump shaft is not slipping. Check the set screw on the blower wheel for tightness. Clean or replace the nozzle with the correct size and spray angle.
3. Bleed the pump and check for clear, air-free oil. If oil is milky or frothy, check the line for air leaks at fittings. Tighten all fittings again. Check filter gaskets and make sure the cartridge is clean.
4. If the burner motor fails to start, reset the control and check for voltage on the burner lead. If no voltage, replace control. If there is power to the motor connect a pig tail and 100 watt bulb to the capacitor leads. If the motor starts, replace the capacitor. If not, check for thermal lock out. **Note:** The BCS burner is equipped with a split capacitor motor containing an automatic reset thermal cut-out. If the motor cuts out because of overheating, it will reset when the motor cools. Make certain that air can flow freely around burner. If motor locks out repeatedly, check capacitor and the fuel pump turning torque before replacing motor.
5. If the burner ignites, runs for a short time (10–20 seconds), and then goes out on safety, replace the flame detector. If the burner still runs only a short time, replace the control.
6. If you smell oil or combustion products, remove and clean the electrode assembly, readjust combustion settings, and insure that the joints on the flue connections are sealed (see "Exhuast Vent" and "Fresh Air Intake Vent" installation, page 6).
7. The internal high limit located in the thermostat will break the circuit to the burner if water overheating occurs. When this happens, the burner will not go into post purge or may stop post purge prematurely. Replace the thermostat, if necessary.

If any other service problems arise, you may obtain more information by contacting your installer or nearest Bock distributor; or write, call, or fax:

Bock Water Heaters, Inc. • 110 South Dickinson Street • Madison, WI 53703
Telephone 608-257-2225 • Fax 608-257-5304

LIMITED WARRANTY

This warranty covers "Bock" water heater models 32E-BCS, 40E-BCS, 51E-BCS, 120E-BCS and 190E-BCS. Bock Water Heaters, a division of Bock Corporation—a Wisconsin corporation—at 110 S. Dickinson Street, Madison, Wisconsin 53703 ("Company"), warrants to the owner, the tank of this water heater will not leak due to defective materials or workmanship for FIVE (5) years from the date of original installation. If the water heater is installed in other than a single family dwelling, this warranty is limited to THREE (3) years from the date of original installation. The company also warrants that no other part of this water heater will fail due to a defect in material or workmanship for one (1) year.

COMPANY'S RESPONSIBILITY

The company's responsibility is to repair or replace, at our option, with the prevailing comparable Bock model, any part of the equipment, including the tank, sold by the company which proves to be defective in material or workmanship during the warranty period, when installed in accordance with applicable codes and ordinances, and operated and maintained in accordance with our instructions, subject to the conditions and exceptions indicated below. Our liability, in the event of leakage or other malfunction, is strictly limited to repair or replacement of the defective heater or part, as provided herein. We are not responsible hereunder for incidental property damage or personal injury, consequential costs or damage. Equipment that is repaired or replaced will carry the unexpired portion of the original equipment warranty.

BURNER AND CONTROLS

Any burner and/or controls used on a Bock water heater other than the ones recommended by Bock Water Heaters, **and listed by Underwriters Laboratories, Inc., will void the water heater warranty**. Bock Water Heaters specifies burners and controls on the basis of safety, reliability and performance. Only the following burners and controls have been tested and approved by Bock Water Heaters and Underwriters Laboratories, Inc., to meet the stringent standards required by both: **32E-BCS: Carlin 0.75 x 70A; 40E-BCS: Carlin 0.85 x 70A; 51E-BCS and 120E-BCS: Carlin 1.1 x 70A; 190E-BCS: Carlin 1.35 x 70B.**

The only controls acceptable for use with these models are as follows:

For normal household applications:

Burner: Carlin EZ1 with 15-minute post-purge and nozzle heater.

Temperature Control (aquastat): 32, 40, 51E-BCS—Carlin EZ-Temp 90000B
120E-BCS—Carlin EZ-Temp 90000C
190E-BCS—Carlin EZ-Temp 90300B

OWNER'S RESPONSIBILITY

At the company's request, the owner is to return to the factory at Madison, WI, any part, including the tank, defective in material or workmanship, and pay all transportation charges for such return parts and for replacement parts sent from the factory to the owner. The owner will pay all labor charges for the removal and installation of such parts, including the tank. Any replacement water heater furnished under this warranty shall remain in warranty only for the unexpired portion of the original warranty. The owner will have annual inspections of the anode rods. Bock Water Heaters requires paid receipts to show maintenance of anodes on glass lined tank claims.

EXCEPTIONS

This warranty will not apply to tanks or parts subject to misuse, abuse, neglect, alteration, accident, excessive temperature, excessive pressure, lime, silt or sediment accumulation, corrosive atmosphere, the removal of the magnesium anode rods, noise, odor, rusty water, the installation of an insulation blanket, installation outside of the United States (excluding Canada), or on which the serial numbers have been altered. The warranty also does not apply when the water heater is installed without a new temperature and pressure relief valve and is not installed in accordance with local codes and ordinances.

OUR TOTAL WARRANTY COMMITMENT

We will not assume, nor authorize any person to assume for us, any other liability in connection with the sale or operation of Bock Water Heaters. Any implied warranties, including merchantability or fitness for a particular application, imposed on the sale of this heater under laws of the state of sale are limited to one year. Some states do not allow limitations on how long an implied warranty lasts, or for the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

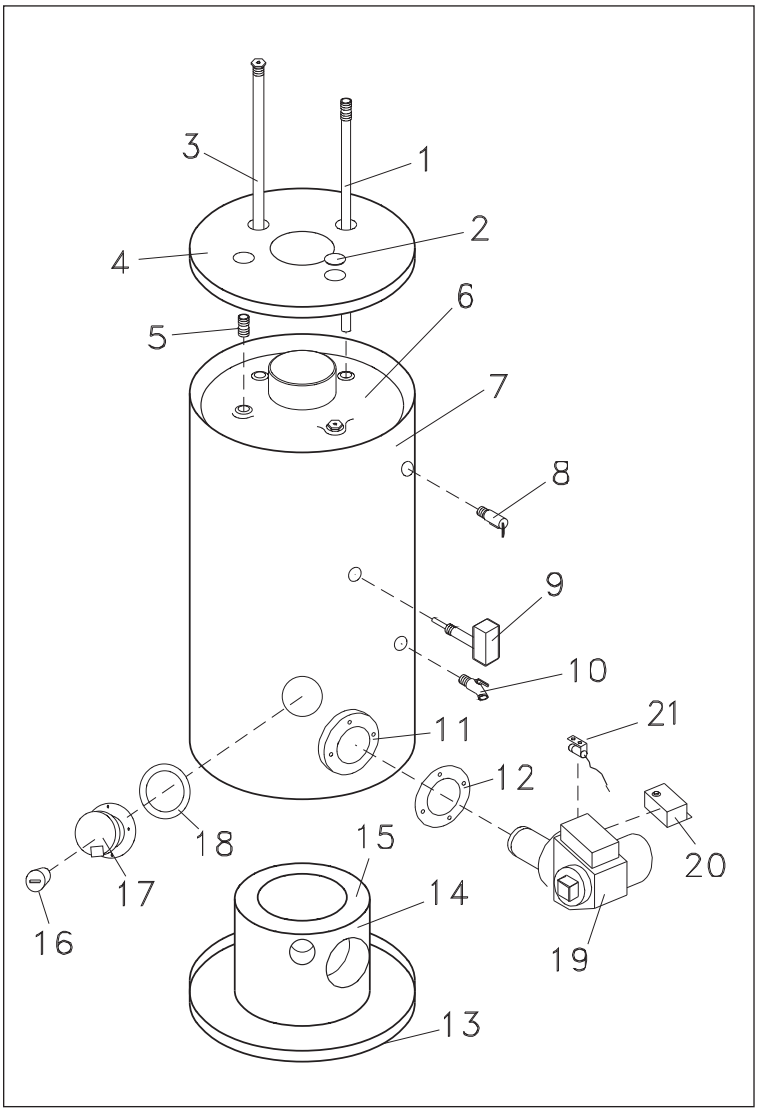
WARRANTY REGISTRATION CARD

The attached warranty registration card should be returned within 30 (thirty) days of the date of installation, otherwise the date of manufacture will be recorded as the date of installation for the purpose of this warranty.

TO MAKE A CLAIM

Contact your nearest Bock distributor or:

Bock Water Heaters, Inc. • 110 South Dickinson Street • Madison, WI 53703
Telephone 608-257-2225 • Fax 608-257-5304
www.bockwaterheaters.com

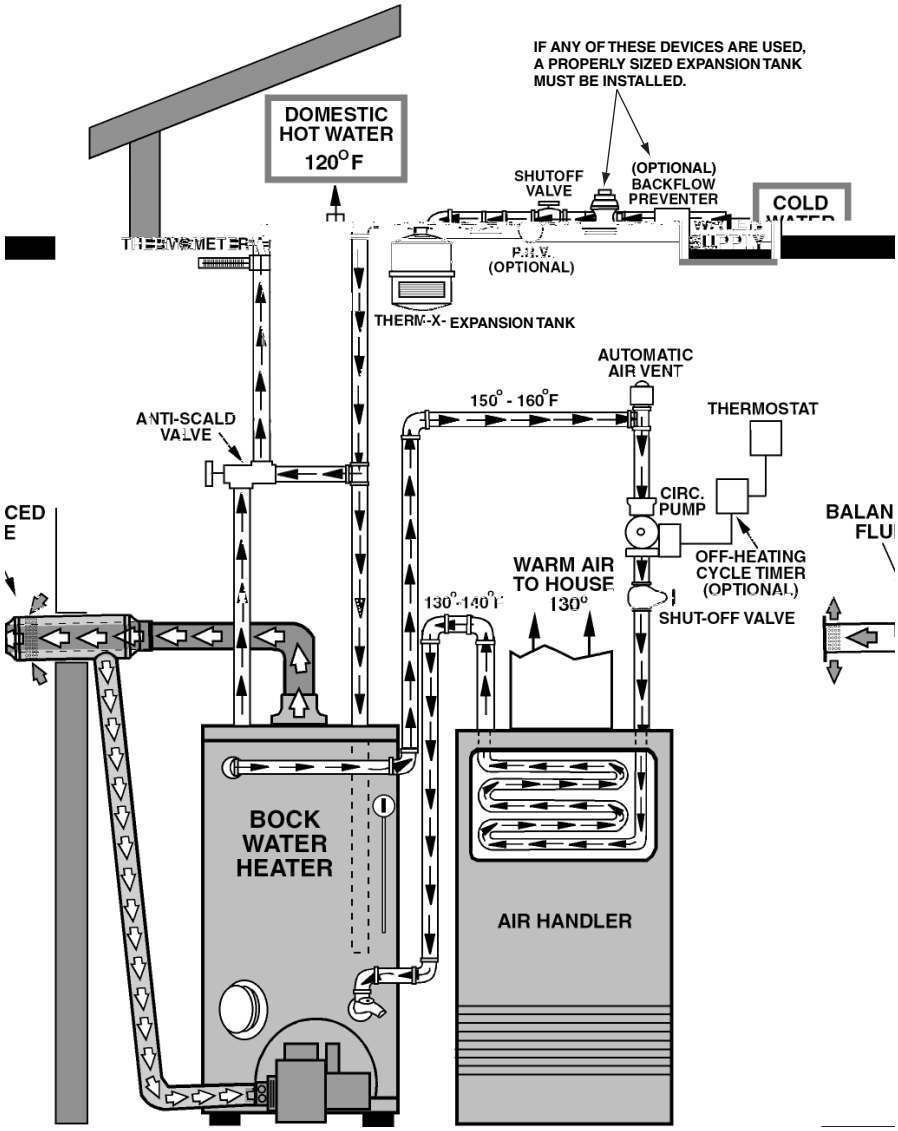


Bock Tank Assembly Parts List

When ordering repair parts, always give the part name, model number, size and serial number.

ITEM DESCRIPTION

1. Cold Water Inlet Dip Tube
2. Plastic Cap
3. Magnesium Rod
4. Top Pan
5. Hot Out Nipple ¾"
6. Tank
7. Heater Jacket
8. Temperature & Pressure Relief Valve
9. Immersion Well & Aquastat
10. Drain Valve
11. Burner Mounting Bracket *(part of jacket assembly—32, 40, 51, BCS)*
12. Mounting Bracket Gasket
13. Bottom Pan
14. Combustion Chamber Sleeve
15. Combustion Chamber
16. Sight Glass
17. Inspection Door
18. Not Used
19. Burner
20. Primary Relay
21. Cad Cell

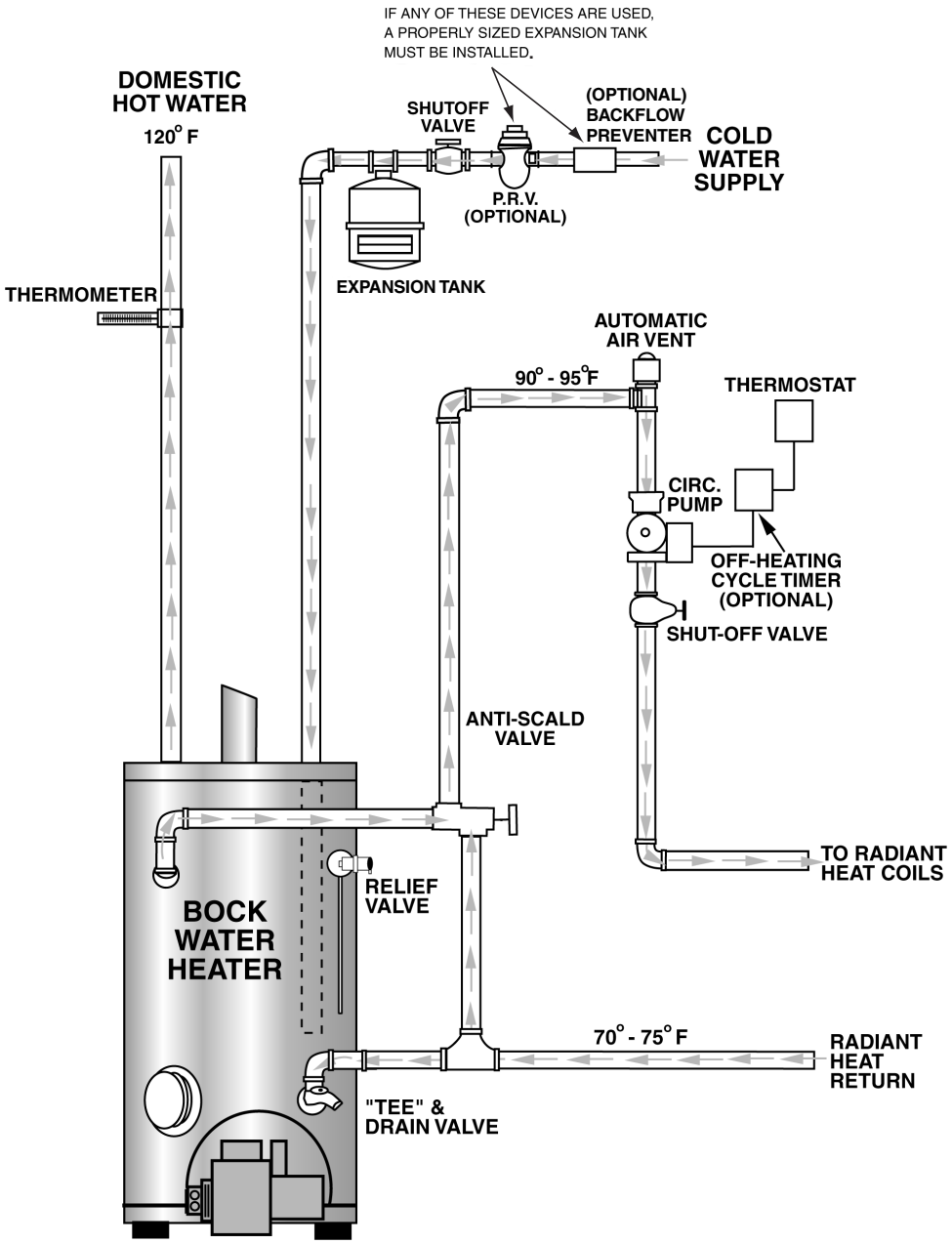


BCS AND SYSTEM PLUS™

System Plus is a combined appliance (space and water heating) based on a Bock high-efficiency water heater and an air handler (available from various manufacturers) to heat the entire home.

System Plus replaces the traditional furnace, cuts heat loss, and:

- **Combines both primary space- and water heating**
- **Significantly lowers monthly fuel bills**
- **Creates an even temperature range—won't dry out room air**
- **Generates more immediately-available hot water**
- **Accommodates central air**
- **Utilizes existing ductwork**
- **Provides easy access for service**
- **Features low maintenance**
- **Extends the life of the water heater**
- **Reduces equipment costs for new construction projects—no chimney is needed for the air handler**



BCS AND RADIANT HEAT

Radiant heating: An in-floor hot water space heating system

A Bock high-efficiency water heater and zoned radiant heating—***Bock&Radiant***—make perfect partners for cost-effective personal comfort that heats both space and water.

Bock&Radiant uses functional hot water and avoids boiler-type overheating that wastes energy.

Bock&Radiant eliminates using a boiler during warm months and lets ecomonic domestic hot water work all year around.

Bock&Radiant maximizes Bock's better heating efficiency as compared to a traditional boiler.

Bock&Radiant cuts overhead costs—simple water heater maintenance is much less expensive than boiler maintenance.